

The Ghost in/on the Machine: magic, technology and the 'modest witness'

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In her essay, "Modest_Witness@Second_Millennium" Donna Haraway writes about the 'modest witness', the scientific observer whose disinterested observation of phenomena is central to the scientific method. Haraway deconstructs the meaning of 'modesty' in this context and then situates the practice of the 'modest witness' socially and culturally:

This self-invisibility is the specifically modern, European, masculine, scientific form of the virtue of modesty. This is the form of modesty that pays off its practitioners in the coin of epistemological and social power. This kind of modesty is one of the founding virtues of what we call modernity. This is the virtue that guarantees that the modest witness is the legitimate and authorized ventriloquist for the object world, adding nothing from his mere opinions, from his biasing embodiment. (Haraway, 1997: 23-24)

This paper explores the relationship between magic and technology through the notion of the modest witness, the guarantor of scientific validity. Science is read here as the territorialising discourse that has worked to bring technology under the control of governments and dominant ideologies, whether they be capitalist or state socialist. Effectively, this notion of science spans what Ihde describes as 'Early Modern Science' and contemporary 'Big Science' or in Latour's terms, 'technoscience' (Ihde, 1993). Ihde notes:

Early Modern Science ... is doubly linked to technology - first in the close association of engineering and instrumentation found to be so natural in the Renaissance, and, again, in the transformation of the ideals of knowledge into experimental, interventionist forms of power/knowledge in its Baconian sense which is, again, instrument-embedded. (Ihde, 1993: 28)

So, through the elaboration of experimentally-based scientific method the practice we know as science was intimately related to technology. At the same time, science determined whether a practice was recognised officially as a technology, since technology was the practice and/or instrumentality that was linked to the development of science. By contrast, consider Don Ihde's definition of technology: "some artifact or set of artifacts - material culture - related to a context of human action or praxes (which include techniques of use)." (Ihde, 1993: 32) On this basis many of the practices performed primarily by women in the home are technologies; yet they are not widely thought of as such. Instead technologies are associated with material practices performed outside the home, mostly for commercial or research purposes. The reason for this seems to be that science is associated with the latter, and not commonly with the former. That is, the scientific basis of commercial and scientific material practices is widely discussed and acknowledged; the scientific basis of domestic technologies is not. As a result science comes to define a technology as a technology in the public mind and in relation to the public purse.

In this gate-keeping role science has been a critical ideological tool, determining what can be regarded as a technology and, via the rhetoric of progress it employs, also determining which users of technology can be regarded as civilised or legitimate in their material practices. The land-management practices of indigenous peoples of Australia were for centuries not recognised as technologies, because their scientific basis was not understood. Which is to say that the scientific discourse that prevailed at the time of evaluation was not able to situate that practice within its understanding of land-management technologies. As a result the practices were seen as incomprehensible or even as destructive (when they were 'seen' at all) and the managers themselves as irrational, uncivilised, ignorant.

Here the connection between science and its definition of the rational can be seen most clearly. Science constitutes itself as a rational practice, via its elaboration of the practice known as the 'scientific method'. This practice of observation, theorisation, experimentation, re-theorisation, repetition, and conclusion is established as the basis of most everyday scientific practice and equated with the meaning of science itself.

Of course, it might be argued that this rationalist model of science no longer applies in a post-Einstein world – that ‘relativity’ described more than a specific theory; rather it ushered in a world that was no longer satisfied with the absolutist statements of Enlightenment thinking. Yet for most scientists everyday scientific practice is still governed by the discipline of the scientific method.

In a sense science validates itself through its argument for the universal applicability and validity of this method. It is this method that scientists argue takes science from the realm of the ideological, the non-rational, the irrational, faith, belief. The scientific method is the guarantor that what the scientist deals in is fact; is objective, neutral. The technologies it acknowledges are equally 'valid'; they too are constituted as factual, neutral, objective. The practice of science is claimed as rational. But perhaps the greatest test of its rationality is how it deals with the non-rational.

i. The ghost on the bike

The relationship between science and the rational is explored through an encounter between a scientist, one with a vested interest in the role of ‘modest witness’ and a ghost – a phenomenon not currently explainable within the realm of what science designates ‘the rational’. In fact the strongest argument against acceptance of the phenomenon as rational was the refusal of the scientific observer to verbally acknowledge its presence.

The scientist in this story was at the time a doctoral student in Biological Sciences. She was in the process of writing up her research findings and was scrupulously aware of the methodology of her discipline and of the (scientific) field in which she operated. At the time of the encounter she was being driven by another student, not a scientist, along a main road (but not a motorway) through the English county of Essex late one night. The driver reported the story.

On a particular stretch of road the driver became aware of a motorbike travelling behind the car. The bike was visible at a distance as a large single headlight. All of a sudden the bike roared up behind the car, seeming as if it was going to ram into the back. At this point the silhouette of a figure on a large bike became visible and the

roaring of a powerful bike engine could be heard. The bike then dropped right back again, till it was visible only as a large head-light. It then went through the procedure repeatedly, driving very fast until it was (too) close behind the car. The driver became uneasy and told her scientist companion about the biker's behaviour so she, too, looked through the back window at the bike roaring up to the car.

Increasingly disturbed by the situation, the driver asked her companion to wind down her window and yell at the biker to stop. When the window was wound down, there was no sound and when the scientist looked back behind the car, the road was empty. However, when she, and the driver, looked through the back window, the bike and its driver were visible and, when the window was again wound up, the roaring of the bike could be heard. The driver then drove very fast until the bike dropped back and was eventually no longer visible. Since a powerful bike would have been much faster than an ancient VW, this was presumably the 'choice' of the biker. However, the driver reported that she did not consider this at the time; her only concern was to get away from that place as quickly as possible.

The most interesting feature of this situation was the subsequent discussion. As the driver had seen several 'ghosts' before, she reported that she was not disturbed by the encounter in any long-lasting sense, but found the immediate situation unpleasant. However, her companion had always expressed an implacable disbelief in the phenomena she had described. The interesting question was, then, how would she, the scientist, deal with the situation. According to the driver, her scientist friend immediately re-confirmed her rejection of any such phenomena. She claimed that, as a scientist, she simply did not believe in anything that cannot be explained scientifically, rationally, logically. The driver then suggested that perhaps science simply does not know yet how to describe such phenomena. The scientist's intriguing response was: no, I simply do not accept what I saw; I did not see it.

The driver reported that her surprise at this statement was based on several factors. Firstly, because it denied the reality of a shared encounter. Secondly, it meant that her companion had the ability to edit her reality in a most blatant manner, if not in terms of what she saw (as shared during the encounter), at least in terms of what she was prepared subsequently to acknowledge she saw. Thirdly, because it contradicted

her understanding of the scientific method, which was that its first step was observation - and that this observation should be carried out as a neutral, disinterested observer. And finally, because it implicitly constructed her own reality as invalid. Threaded through this list of concerns is another ghostly presence – the modest witness.

ii. Modest witness, not

This paper began by quoting Donna Haraway's description of the modest witness, as a gendered and culturally-specific concept that offers 'epistemological and social power' to those who embody it. For the professional scientist that epistemological power resides in her or his recognition as a scientific researcher; social power in the ability to gain public funding for research and to influence public policy. In order to wield this power the scientist must be recognised as a 'modest witness'.

When the scientist declared that she had not seen what she had previously acknowledged, the driver was surprised by what she interpreted as a lack of scientific rigour. According to the driver's everyday understanding of the scientific method, the scientist should have followed a sequence of steps: record the phenomenon; reflect upon it and develop an hypothesis about it; find a way to test that hypothesis; develop a theory to explain the phenomenon. Ironically, it might be suggested that the driver's notion of scientific rigour was based on an acceptance of the ideology of science itself, that declares its practitioner to be neutral, objective and disinterested. The working scientist knew better. She knew that to be accounted a modest witness, she could not afford to be known as someone who believes in things that are outside mainstream scientific thought. If she is positioned outside that mainstream, she will not be acceptable as a modest witness - and so will be unacceptable as a scientist. To declare herself witness to a paranormal phenomenon would be to risk delegation to *The X-Files* and the fate of Fox 'Spooky' Mulder; seen as brilliant but misguided, laughed at for his preparedness to witness the 'unwitnessable' - the phenomena that contemporary science cannot explain.

In this encounter with the paranormal the scientist's response might be seen as the making of a modest witness. This is most clearly seen in the scientist's readiness to

edit her reality – if not in the moment of experience, certainly afterwards in the telling of the event. The driver reported her surprise at what she saw as lack of rationality in the scientist; a refusal to accept a phenomenon because it did not fit within current understanding of the real. Yet it might be suggested that, again, her surprise was naïve, as it failed to acknowledge the ideological context within which the scientist operates. If the scientist's response is looked at a little differently, we might instead suggest that in refusing to acknowledge that she had seen a ghost the scientist did not not-see it; she simply *said* that she did not see it. In other words, the focus is not on the experience itself, but on her willingness to *witness* the experience.

Haraway writes in her article on the "modest witness" about a study of the chemist, Robert Boyle by Shapin and Scaffer. The authors of the study note that three different technologies come into play when a new life form (here, the scientific method) is developed: a material technology, a literary technology, and a social technology. The literary technology is the means by which the scientific experiment is conveyed to those who were not direct witnesses. Haraway notes several implications of this technology. Referring to Shapin's later description of Boyle's experiment with the air-pump, Haraway quotes his analysis of the role of the working-men who actually worked the bellows in Boyle's laboratory: "'As a free-acting gentleman, [Boyle] was the author of their work. He spoke for them and transformed their labor into his truth.'" (Shapin 1994: 406)" And Haraway comments: "Unmasking this kind of credible, unified authorship of the labor required to produce a fact showed the possibility of a rival account of the matter of fact itself ..." (Haraway, 1997: 26) In other words, the literary account of the experiment elides the perspectives of all except the author, whose singular account is constructed as factual. Boyle did not consult his workmen; their views on the experiment are constituted as irrelevant, with only Boyle considered sufficiently disinterested to make the factual observations. So the literary account of the observation – the *witnessing* - is also part of the construction of the modest witness, and not vice-versa - as the apprentice scientist understood very clearly.

Haraway also notes the literary technology's role in informing all those who could not attend an experiment:

... those actually physically present at a demonstration could never be as numerous as those virtually present by means of the presentation of the demonstration through the literary device of the written report. Thus, the rhetoric of the modest witness, the "naked way" of writing, unadorned, factual, compelling, was crafted. Only through such naked writing could the facts shine through, unclouded by the flourishes of any human author. Both the facts and the witnesses inhabit the privileged zones of "objective" reality through a powerful writing technology. (Haraway, 1997: 26)

Haraway's own writing is intriguing here, in that the 'unadorned' and 'factual' way of writing identified as scientific discourse is also identified as 'compelling'. Compulsion would seem to be contradictory to the strictly unemotional, disembodied tone of the scientific text - a writing apparently shorn of affect. Haraway's prose, however, suggests that the very adoption of this stance carries an emotional or affectual charge - perhaps not unlike the attractiveness of the ascetic. This "naked writing" gives the reader access to a privileged realm where s/he rubs shoulders with other (first- and second-order) witnesses and confirms their mutual occupation of a socially-sanctioned and validated space. They form an in-group, a privileged sub-culture, a cult - with the same affective practices (reinforcement, patronage, flirtation, seduction) as other cults. To be a member one must walk the walk and talk the talk: membership is both embodied and discursive.

When non-witnesses read scientific discourse, they enter vicariously (virtually) into this space; become part of this sub-culture. Their own embodiment is shaped by their membership, as is their discourse. To refuse to comply is to risk rejection and ejection. The scientist who consults issues of embodiment cannot be seen as a dedicated (i.e. real, true) scientist. Such a scientist might question the purpose of her or his research; be distracted [sic] by its embodied practice and so be diverted from a logical, factual, rational solution. That is, if disembodied practice is seen as logical, rational, factual, as it has so often been in modern times. As Haraway notes:

This separation of expert knowledge from mere opinion as the legitimating knowledge for ways of life, without appeal to transcendent authority or to abstract certainty of any kind, is a founding gesture of what we call modernity. It is the founding gesture of the separation of the technical and the political. (Haraway, 1997: 24)

It is the stance that enables the nuclear physicist working on weapons research to describe the work as 'an interesting problem in physics' and to eschew any responsibility for the uses to which the research may be put - as if the research is conducted without reference to embodiment or materiality. The dedicated scientist must construct him/herself as not only disembodied but must also communicate through a kind of disembodied prose - a prose apparently without affect, that constitutes him/her as a modest witness.

In stating her refusal to acknowledge publicly that she saw what she saw, the scientist shaped her discourse to fit the acceptable parameters of contemporary science, which do not allow for (the observation of) paranormal phenomena. In other words, she constructed her account of the phenomenon by reference to, and within, scientific discourse. Her (ghostly) experience as an embodied contemporary social subject is not acceptable in the realm of science she inhabits - and so she acted as Scully to her own Mulder; she edited. But note that she edited for consumption; she was not prepared to acknowledge what she saw. Which is to say that she was not prepared to inscribe her experience within the literary technology of science, even if she privately acknowledged that experience. This was a political decision - which was also a scientific decision - and so one that effectively deconstructed the ideology of science, as articulated in the concept of the 'modest witness'.

The driver reported that she found this practice- the refusal to witness the unwitnessable - totally irrational, as it seems to foreclose the possibility of a scientist discovering anything new. That is, if any event or phenomenon that falls outside the parameters of contemporary science is either disavowed or transformed so that it fits within contemporary parameters, how, she argued, could change occur. Philosophers

of science such as Thomas Kuhn note precisely this problem within the practice of science; hence Kuhn's thesis that scientific advance takes place by revolutionary changes of paradigm - precisely because of the inertial drag of this kind of editing (Kuhn, 1962).

iii. Immodesty: a cultural analysis

There is another side to this case study, however - the 'immodest witness' constituted by the driver of the car. Without the demands of science to delineate her account she was able to describe her (their?) experience - to witness - but then found that her witness was regarded as scientifically invalid or unacceptable. The driver reported that, since her own experience included other such events, she had a context for situating the phenomenon, if not a scientific explanation for it. In exploring the scientist's basis for the denial of her (and, originally, their) version of the encounter she found that her own earlier experiences of such phenomena were regarded as a reason for excluding her from 'modest witness' status. That is, the fact that she had already witnessed the unwitnessable simply confirmed that fact that she was an unacceptable witness. She reported that, on the one hand, this argument seemed so silly that it was laughable but, on the other hand, it employed a denial of her experience that seemed iniquitous. It not only excluded her from those who were deemed suitably modest (with the social power and authority they wielded), but it also denied her/their common humanity - in that a shared experience was simply denied and her experience discredited.

The driver also reported that an ethnic dimension was added to the debate when she invoked a family history of paranormal abilities. All of the family members who possessed (or at least witnessed to their possession of) these abilities were Irish. For the English scientist, it was not surprising to find such irrational and invalid experiences associated with a culture that had, for centuries, been constructed by the English as marginal. So the driver found her credibility undermined not only in terms of her own experience (her previous history of immodest witnessing), but also culturally. Which brings the discussion back to Haraway's exploration of the 'modest witness'. In fact, Haraway specifically addresses the formation of Englishness in her paper, and she notes:

Gender and race never existed separately and never were about preformed subjects endowed with funny genitals and curious colors. Race and gender are about entwined, barely analytically separable, highly protean, *relational* categories. Race, class, sexual, and gender formations (not essences) were, from the start, dangerous and rickety machines for guarding the chief fictions and powers of English civil manhood. To be unmanly is to be uncivil, to be dark is to be unruly: [t]hose metaphors have mattered enormously in the constitution of what may count as knowledge. (Haraway, 1997: 30)

As Stuart Hall and others have noted (Hall, 1992; Michie, 1992; Cranny-Francis, 1995), the Irish have been constituted consistently by the English as dark, unruly and uncivil. The result of this identification is that their status as witnesses can be negated. Unlike the middle aged, middle-class Englishman, the Irish are deemed not capable of the detachment and neutrality, the objectivity, required of the modest witness. Which does not mean that individual Irish citizens are necessarily excluded from the realm of science, but rather that an individual scientist (modest witness) may invoke stereotypical responses to a specific group or culture in her or his evaluation of its suitability as scientific witness.

Haraway also notes that the 'modest witness' is gendered:

... modest men were to be self-invisible, transparent, so that their reports would not be polluted by the body. Only in that way could they give credibility to their descriptions of other bodies and minimize critical attention to their own. This is a crucial epistemological move in the grounding of several centuries of race, sex, and class discourses as objective scientific reports. (Haraway, 1997: 32)

She goes on to note that these 'scientific' texts about race, sex, and class constructed the body of the (white, male, middle-class) observer as transparent, invisible. Many female scientists have reported the effects of this gendering in their lives as working scientists, in the negative responses of some male scientists to their presence in laboratories as well as to the authority of their work. Haraway's work is valuable here in that it situates the reasons for these responses not only in the attitudes of those

individual men, but also relates it systemically to the discursive practice of science. In her analysis the modest witness has no body, unlike the unreliable, embodied 'others' he studied - women, non-English, non-middle-class, non-heterosexual, non-middle-aged. Each of these studied categories is, through the practice of observation, embodied. So, like women, the non-English, non-middle-class, non-heterosexual, and non-middle-aged are 'seen' to be embodied and that embodiment is constituted as the grounds on which their observations are necessarily biased; they are unreliable, immodest, witnesses. Which is to say, they cannot witness, in the terms defined by scientific discourse.

iv. Subaltern practices and multiple knowledges

Situating the 'ghost seeing' and 'second sight' of the immodest Irish witness, however, suggests that this apparently non-rational, or irrational, ability may have significances beyond the everyday, as may the self-reflexive 'seeing' of women and non-heterosexuals, the seers of non-English cultures, the vaunted 'innocent' seeing of children and the differently-abled, and the experienced vision of the elderly. In each case, a kind of seeing is associated with those excluded from the social power and authority granted to the witness. Often this is a method of stereotyping those groups; yet it may also be the source of a subaltern response to the exclusionary power of the witness.

In the case of the Irish, constituted by the English as non-rational and so likely to think of themselves as seeing ghosts or seeing across time and space, these attributes can be a defence against the ruthless force of English rationalism. From this perspective the Irish can be seen as having been marginalised socially and culturally by the English; however, they also have magical powers that the rationalist (the scientist) cannot explain (away). Those powers mark the limits of scientific discourse, which is a specific inflection of the rational, of modernity (Latour, 1993: 5). So magic delimits the contours of the rational, and of science, revealing it as not a disinterested, objective practice, but as a political practice - a colonising discourse that works to position a specific subject position as dominant (that of the middle-class, middle-aged Englishman). This subject position is that of the modest witness. The magic works reflexively to reveal that positioning and to offer the marginalised

subject a position from which the colonising of rational, and scientific, discourse can be experienced as just that – as a discourse, not as ‘objective reality’.

This position is not unlike that described by Teresa de Lauretis in *Technologies of Gender* (de Lauretis, 1987). She notes that women experience their own construction as Woman, the essentialist category of patriarchal discourse ('equal and opposite to Man'). However, they also experience the everyday reality of being women, which means being treated as unequal. Since they constantly move between the essentialist representation (Woman) and its material reality (women), they 'see' the contours of the discourse in/by which they are delimited. Women reflexively 'see' their social positioning, even as they are excluded from the role of witnessing. Paradoxically, those who are permitted to witness (middle-class, middle-aged Englishmen) are blind to their positioning; they have a vested interest in not acknowledging the (located) position from which they see and speak (witness).

As Latour notes, however, the separation of critical practices (epistemology, the social sciences, the textual sciences) that once defined modernity is now under challenge (Latour, 1993: 5). As these separate spheres/practices dissolve, so do their gate-keeping discourses. Other ways of thinking, of 'seeing', are increasingly acceptable. In fact, they are regarded as essential if the world is to recover from the degradation of the natural and social environments caused by both capitalism and state socialism - both of which accepted the (apparent) separation of science and politics fundamental to modernity. Postmodernity is often characterised by/as the proliferation of knowledges, with 'knowledge' as a transcendent category now under challenge. Instead, knowledge (including science) is understood as a political practice, as located within a specific society at a particular time and as fulfilling particular needs (notably the construction/validation of the 'modest witness'). In other words, 'science' is located as a situated knowledge, not as knowledge *per se*.

It might be argued that this same situatedness has informed scientific theorisation throughout the twentieth-century. As noted earlier, Einstein's 'relativity' theory introduced the position of the observer into the experimental situation. However, this

observation is still qualified as this 'relativism' or situatedness is commonly confined to a decontextualised, non-situated understanding of the experiment. In other words, the scientific 'relativity' does not account for the relationship between the scientific endeavour itself and the society in which it takes place.

v. Science & technology: territorialising discourse vs. embodied practice

Perhaps the apocalyptic moment of modern science, technoscience, is Oppenheimer's embodied response to the detonation of the atomic bomb over Hiroshima. He is said to have whispered a quote from the *Bhagavad-Gita*: "I am become death, the destroyer of worlds." (White, 2002: 222) In this extraordinary concatenation of the poetic and the technological we see the essence of science - an embodied, situated, social, political, ethical, economic practice. When Heidegger writes of technology that it is a bringing-forth, a way of living in the world, he makes a similar point. Modern technology is, for Heidegger, a challenging-forth, which can be a ruthless drive for control of objects and people in the name of a colonising discourse.

Arguably, science has operated as this discourse. But, like Heidegger's challenging-forth, the technology that is at the heart of science (fundamental to the scientific method) may also be the means by which it moves beyond this exploitative practice to a revealing that challenges that ruthless (inhuman, disembodied, 'objective') practice. In recognising the technology at its heart, science may be led to a self-reflexiveness that acknowledges its role in modernity - the analysis we see already in the work of Shapin and Schaffer, Haraway, Latour, Ihde and others. That is, science may be forced to recognize its embodied, material practice thereby breaking down the science/politics dichotomy that has characterised modern science. From this position scientific discourse must account for itself as a literary and social practice. Nuclear weapons research could no longer be 'an interesting problem in physics'; instead its role in constituting the modern nuclear state, with all its paranoia and secrecy, would be recognised - by the scientists themselves, not just their textual and social critics.

In the meantime, it must be said, much contemporary science maintains the exclusive discourse that has characterised it throughout modernity. It is, therefore, not surprising to find that U.K. educators are still attempting to deal with the fact that

there are so few black British scientists (*New Scientist*, March 9, 2002). Despite attempts to encourage non-white British children to take science subjects at school and university, the educators have found the numbers dwindling. The reason seems to be that there is no place in the discourse of science for these students; they cannot be modest witnesses. For black Scientist, Elizabeth Rasekoala the reason for this has to do with the value of science and technology in today's world:

...as societies develop, technology and science become powerful tools by which you can socially engineer the rise or exclusion of certain groups of people. In western technological societies maths, science and technology have all been used to allow access to some people and to keep others out. (Rasekoala, 2002: 46)

And she specifies the mechanism of this exclusion as the validation of only certain social subjects as modest witnesses:

Maths has been constructed as if it's for "clever" people, and we've all bought that. And the same society that says that maths is for clever people also shows you images of what those clever people look like. For the most part, it's a white male. (Rasekoala, 2002: 46)

vi. Envoi

Some time later, in another discussion about ghosts, the scientist told her friend that her dead uncle was often seen by members of the family. Her sister had had her bed-clothes adjusted one night by uncle, apparently in a repeat of the gesture by which he had bedded down the horses who once lived in the stables now transformed into guest bedrooms. And this dead uncle was not only seen by the family, but also by the neighbours, regularly walking up the path from the front gate to the house.

Q. *"So you do believe in ghosts?"*

A. Shrug. Silence.

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